REMARKS

Claims 79, 97, 99, 101, 102 and 104 have been amended to clarify the language to avoid any question of ambiguity, and not for the purpose of distinguishing over the known state of the art.

Four patents were cited by the PCT examiner in the corresponding PCT Application No. PCT/US00/40246: U.S. Pat. Nos. 5,910,458 (Beer et al.); 5,908,689 (Dana et al.); 4,752,513 (Rau et al.); and 5,055,242 (Vane).

The Beer et al. '458 patent teaches a three-layer mat having unidirectional, longitudinal roving, a random continuous swirl mat and a woven or knitted layer. The three layers are described as being needled together. The resulting mat is too dense to be effectively pultruded because of excessive Z-axis fibers resulting from the needling. Primary structural strength is provided by the continuous fibers along the longitudinal axis, rather than from the transverse fibers of the mat of the present invention.

The mat of the Dana et al. '689 patent consists of two layers, one being a chopped strand while the second is a random continuous swirl mat functioning as the bottom supporting layer. This two layer assembly is needled together and is too weak (low dry mat tensile strength) to be extruded.

Rau et al. in the '513 patent teaches a random continuous swirl layer and a scrim layer mat in which the layers are needled together. Because of the excessive Z-axis fibers produced by the needling, there will be no internal slip between the laminate layers thus resulting in higher cycle failures during pultrusion because of excessive pull forces.

The Vane '242 patent discloses a pre-layered mat made up of 0° fibers, 90° reinforcement fibers, and ± 45° reinforcement fibers. The entire assembly is stitched together. Vane does not teach entanglement of fibers and makes no suggestion of doing so. Although the '242 patent contains an assertion

that the preformed mat is useful for pultrusion, the mat as assembled would neck and/or truck poorly in pultrusion profiles intended for fenestration. Thus, the Vane mat is best used for RTM processes rather than pultrusion.

None of the references cited in the corresponding PCT application teach the provision of a reinforcement mat for a pultruded part in which the mat has reinforcing fibers extending in a direction transverse to the pull direction of the part, along with staple fiber batting material in contact with the reinforcing fibers. At least a portion of the staple fibers extend through a portion of the mat and are randomly entangled with and interconnect the transverse reinforcing fibers. The random transverse staple fibers serve to stabilize the mat for pultrusion of various parts without interfering with or adversely affecting the pultrusion process.

An early action on the merits of Claims 1-120 is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Any additional fee which is due in connection with this amendment should be applied against our Deposit Account No. 19-0522.

Respectfully submitted,

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ATTORNEYS FOR APPLICANTS

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 79 as been amended as follows:

79. (Amended) A reinforcement mat as set forth in claim 70 [75] wherein said elongated transport fibers include stitch defining [comprise stitched] fibers extending in said pull direction of the part.

Claim 97 has been amended as follows:

97. (Amended) A pultruded part of elongated, constant transverse, predetermined cross-sectional shape and formed by pulling the part through a pultrusion die comprising:

a stretch of elongated fiber rovings extending generally in the direction of pull of the part through said die;

a [an elongated] reinforcement mat associated with the stretch of fiber rovings, said reinforcement mat [including] having a length extending longitudinally of the pultruded part, a width extending across at least a part of the cross sectional shape of the mat and a thickness at right angles to the width and shape of the mat;

[a stretch of elongated fiber rovings;]

[a body having a pair of opposed outer surfaces which define the thickness of the mat,] said mat [body] including elongated reinforcing fibers oriented in a direction transverse to the [said] pull direction of the part;

batting material in contact with said reinforcing fibers and including staple fibers, a certain proportion of said staple fibers extending through at least a portion of said mat thickness and randomly entangled with and interconnecting said reinforcing fibers; and

a synthetic resin composition enveloping said mat and the stretch of elongated fiber rovings and configured by the die during pulling of the part through the die [to present said predetermined desired cross-sectional shape of the part].

Claim 99 is amended as follows:

99. (Amended) A pultruded part as set forth in claim 97, wherein said transverse fibers are disposed at an angle of from about 60° to about 90° with respect to the [said] longitudinal pull direction of the part.

Claim 101 is amended as follows:

101. (Amended) A pultruded part as set forth in claim 100, wherein said transport fibers include first and second elongated diagonal fibers extending diagonally across substantially the full transverse width of the mat with the first diagonal fibers oriented at an angle in the range from about +30° to about +60° and the second diagonal fibers being oriented at an angle in the range of from about -30° to about -60° with respect to the [said] longitudinal pull direction of the part.

Claim 102 is amended as follows:

102. (Amended) A pultruded part as set forth in claim 100, wherein said transport fibers include elongated stitched fibers extending generally in said direction of pull of the part.

Claim 104 is amended as follows:

104. (Amended) A method of preparing a mat for use and manufacture of a pultruded part where the mat, which comprises a body having a pair of opposed outer surfaces that [which] define the thickness of the mat, is constructed to be pulled through a pultrusion die in a continuous longitudinal pull direction, said method comprising:

positioning a quantity of reinforcing fibers in a direction oriented transverse to said longitudinal pull direction; [and]

positioning batting material comprising staple fibers, in contact with said reinforcing fibers; and directing at least a portion of the staple fibers of the batting material randomly through at least a portion of the mat thickness for entanglement and interconnection with said reinforcing fibers.